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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Edgar A. Mendoza

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08/11/2004

JONES DAY

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EXAMINER

SANGHAVI, HEMANG

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/574,840

Applicant(s)

MENDOZA ET AL.

Examiner

Hemang Sanghavi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20-46 is/are pending in the application.
- 4a) Of the above claim(s) 12-14, 31 and 32 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11, 20, 22-30 and 34-39 is/are allowed.
- 6) ☒ Claim(s) 15-18, 33, 40 and 42-46 is/are rejected.
- 7) ☒ Claim(s) 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

In response to the applicant's amendment received on April 15, 2004, all requested changes to the specification and claims have been entered.

Applicant's arguments with respect to claims 15-18, 21, 33, 40, and 42-46 have been considered but are deemed to be persuasive. See details in the Remarks section.

Claims 1-18 and 20-46 are pending in the application. Claims 12-14 and 31-32 are withdrawn from consideration. The action on merits of claims 1-11, 15-30, and 33-46 is as follows.

Allowable Subject Matter

Claims 1-11, 20, 22-30, and 34-39 are allowed over the prior art of record.

Claim 41 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to disclose or suggest the claimed apparatus including a photosensitive sol-gel derived thin film on a substrate including a channel, wherein the channel comprises a photodeposited metal oxide.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Najafi et al (Journal of Lightwave Technology, 9/1998).

Najafi et al discloses a grating device comprising a substrate having a silicon dioxide surface and a photosensitive sol-gel derived film formed thereon. The film includes a waveguide channel therein having an index of refraction sufficiently higher than the index of refraction in adjacent regions (silicon dioxide surface). The channel having a continuous variation in index of refraction in the form of a grating. See Fig. 9. The channel also includes a metal oxide.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of

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35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 16-18, 33, 40, and 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Najafi et al (Journal of Lightwave Technology, 9/1998).

Najafi et al, as discussed above, discloses a photosensitive sol-gel film on a substrate containing oxygen and silicon. The channel formed on the substrate includes SiO₂ with a metal (Zr and Al doped sol-gels).

Najafi et al, as discussed above, fails to disclose electrodes on the channel, a plurality of waveguide channels including electrode means to switch the signal between the waveguides.

However, such configuration of the waveguides is well known in the art. The use of electrodes to change the refractive index of the waveguides is commonly done to efficiently control the light traveling in the waveguides.

From available well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to configure the waveguides of Najafi et al with electrodes for the purpose of advantageously controlling the light traveling through the waveguides.

Najafi et al also fail to disclose Dragone type well known optical device (a plurality of channels extending between an input and an output).

However at page 1645 last paragraph, Najafi et al teaches that the materials described in this paper are promising for low-cost and large-scale production of integrated photonic circuit.

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From collective teachings of Najafi et al, the ordinary artisan would have found it to be obvious at the time of the invention to use the sol-gel channel materials for making large-scale waveguide structure such as Dragone type optical device for the purpose of advantageously reducing the cost of the device.

Remarks

Applicant's arguments are not persuasive for the following reasons:

As to claim 15, applicant argues that Najafi et al does not teach or suggest the production of a waveguide having a continuous variation in its refractive index along at least a portion of its length.

Examiner respectfully disagrees with the above statement. In Fig. 9, Najafi et al discloses a grating on a sol-gel derived optical waveguide. The grating structure constitutes a continuous variation in the refractive index of the waveguide along at least a portion of its length. See page 1644. Also, at page 1643 (2nd paragraph), Najafi et al teaches that the film is illuminated with a laser through a phasemask and such step forms modulation of the refractive index of the radiation.

As to claim 40, applicant argues that Najafi et al fails to disclose a plurality of embedded waveguide channels.

Najafi et al does not explicitly teach a plurality of waveguide channels. However, in Conclusion, Najafi et al teaches to provide a high quality sol-gel glass waveguides on silicon. As stated above, producing integrated optic with a plurality of channels is extremely well known and suggested by Najafi et al.

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Conclusion

Since the Najafi et al reference used in the above rejection was submitted by applicant in the prior art statement, no copy thereof is provided with this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemang Sanghavi whose telephone number is (571) 272-2358. The examiner can normally be reached on Monday-Thursday (8:30 AM-6:00 PM).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hemang Sanghavi
Primary Examiner
Art Unit 2883

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